



SEQUENCE LISTING

<110> Fisher F., Eric
Edwards K., Carl
Kieft L., Gary

<120> Truncated Soluble Tumor Necrosis Factor Type-I and
Type-II Receptors

<130> 02-006

<140> 09/882,735

<141> 2001-06-15

<150> 09/214,613

<151> 1999-01-08

<150> PCT/US97/12244

<151> 1997-07-09

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<151> 1997-02-07

<150> 60/037,737

<151> 1997-01-23

<150> 60/032,354

<151> 1996-12-06

<150> 60/021,443

<151> 1996-07-09

<160> 30

<170> PatentIn Ver. 2.0

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<211> 483

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(483)

<400> 1

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Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn Asn Ser
1 5 10 15

att tgc tgt acc aag tgc cac aaa gga acc tac ttg tac aat gac tgt 96
Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys
20 25 30

cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag agc ggc tcc 144
 Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser
 35 40 45

ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc tgc tcc aaa 192
 Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser Lys
 50 55 60

tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc aca gtg gac 240
 Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val Asp
 65 70 75 80

cgg gac acc gtg tgt ggc tgc agg aag aac cag tac cgg cat tat tgg 288
 Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp
 85 90 95

agt gaa aac ctt ttc cag tgc ttc aat tgc agc ctc tgc ctc aat ggg 336
 Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu Cys Leu Asn Gly
 100 105 110

acc gtg cac ctc tcc tgc cag gag aaa cag aac acc gtg tgc acc tgc 384
 Thr Val His Leu Ser Cys Gln Glu Lys Gln Asn Thr Val Cys Thr Cys
 115 120 125

cat gca ggt ttc ttt cta aga gaa aac gag tgt gtc tcc tgt agt aac 432
 His Ala Gly Phe Phe Leu Arg Glu Asn Glu Cys Val Ser Cys Ser Asn
 130 135 140

tgt aag aaa agc ctg gag tgc acg aag ttg tgc cta ccc cag att gag 480
 Cys Lys Lys Ser Leu Glu Cys Thr Lys Leu Cys Leu Pro Gln Ile Glu
 145 150 155 160

aat 483
 Asn

<210> 2
 <211> 161
 <212> PRT
 <213> Homo sapiens

<400> 2
 Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn Asn Ser
 1 5 10 15

Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys
 20 25 30

Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser
 35 40 45

Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser Lys
 50 55 60

Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val Asp
 55 70 75 80

Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp
85 90 95

Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu Cys Leu Asn Gly
100 105 110

Thr Val His Leu Ser Cys Gln Glu Lys Gln Asn Thr Val Cys Thr Cys
115 120 125

His Ala Gly Phe Phe Leu Arg Glu Asn Glu Cys Val Ser Cys Ser Asn
130 135 140

Cys Lys Lys Ser Leu Glu Cys Thr Lys Leu Cys Leu Pro Gln Ile Glu
145 150 155 160

Asn

<210> 3

<211> 332

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: sTNFR-I
2.6D/C105

<220>

<221> CDS

<222> (4)..(321)

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cat atg gac agc gtt tgc ccc caa gga aaa tac atc cac cct caa aat 48
Met Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn
1 5 10 15

aat tgc att tgc tgt acc aag tgc cac aaa gga acc tac ttg tac aat 96
Asn Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn
20 25 30

gac tgt cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag agc 144
Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser
35 40 45

ggc tcc ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc tgc 192
Gly Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys
50 55 60

tcc aaa tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc aca 240
Ser Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr
65 70 75

gtg gac cgg gac acc gtg tgt ggc tgc agg aag aac cag tac cgg cat 288
Val Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His
80 85 90 95

tat tgg agt gaa aac ctt ttc cag tgc ttc tgc tgataggatc c
 Tyr Trp Ser Glu Asn Leu Phe Gln Cys Phe Cys
 100 105

332

<210> 4
 <211> 106
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sTNFR-I
 2.6D/C105

<400> 4
 Met Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn Asn
 1 5 10 15
 Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp
 20 25 30
 Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly
 35 40 45
 Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser
 50 55 60
 Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val
 65 70 75 80
 Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr
 85 90 95
 Trp Ser Glu Asn Leu Phe Gln Cys Phe Cys
 100 105

<210> 5
 <211> 339
 <212> DNA
 <213> Artificial Sequence

<220>
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 2.6D/C106

<220>
 <221> CDS
 <222> (4)..(330)

<400> 5
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 Met Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn
 1 5 10 15
 aat tcg att tgc tgt acc aag tgc cac aaa gga acc tac ttg tac aat 96
 Asn Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn

	20	25	30	
gac tgt cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag agc				144
Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser				
	35	40	45	
ggc tcc ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc tgc				192
Gly Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys				
	50	55	60	
tcc aaa tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc aca				240
Ser Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr				
	65	70	75	
gtg gac cgg gac acc gtg tgt ggc tgc agg aag aac cag tac cgg cat				288
Val Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His				
	80	85	90	95
tat tgg agt gaa aac ctt ttc cag tgc ttc aat tgc tct ctg taaaagctt				339
Tyr Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu				
	100	105		

<210> 6
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sTNFR-I
 2.6D/C106

<400> 6	
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Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp	
20	30
Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly	
35	45
Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser	
50	60
Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val	
65	80
Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr	
85	95
Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu	
100	105

<210> 7
 <211> 333

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sTNFR-I
2.6D/N105

<220>
<221> CDS
<222> (4)..(321)

<400> 7
cat atg gac agc gtt tgc ccc caa gga aaa tat atc cac cct caa aat 48
Met Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn
1 5 10 15

aat tcg att tgc tgt acc aag tgc cac aaa gga acc tac ttg tac aat 96
Asn Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn
20 25 30

gac tgt cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag agc 144
Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser
35 40 45

ggc tcc ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc tgc 192
Gly Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys
50 55 60

tcc aaa tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc aca 240
Ser Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr
65 70 75

gtg gac cgg gac acc gtg tgt ggt tgc agg aag aac cag tac cgg cat 288
Val Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His
80 85 90 95

tat tgg agt gaa aac ctt ttc cag tgc ttc aat taatagggat cc 333
Tyr Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn
100 105

<210> 8
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sTNFR-I
2.6D/N105

<400> 8
Met Asp Ser Val Cys Pro Gln Gly Lys Tyr Ile His Pro Gln Asn Asn
1 5 10 15

Ser Ile Cys Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp
20 25 30

Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly
 35 40 45
 Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser
 50 55 60
 Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val
 65 70 75 80
 Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr
 85 90 95
 Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn
 100 105

<210> 9
 <211> 285
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sTNFR-I
 2.3D/d18

<220>
 <221> CDS
 <222> (4)..(276)

<400> 9
 cat atg tgt acc aag tgc cac aaa gga acc tac ttg tac aat gac tgt 48
 Met Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys
 1 5 10 15

 cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag agc ggc tcc 96
 Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser
 20 25 30

 ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc tgc tcc aaa 144
 Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser Lys
 35 40 45

 tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc aca gtg gac 192
 Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val Asp
 50 55 60

 cgg gac acc gtg tgt ggc tgc agg aag aac cag tac cgg cat tat tgg 240
 Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp
 65 70 75

 agt gaa aac ctt ttc cag tgc ttc aat tgc tct ctg taaaagctt 285
 Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu
 80 85 90

<210> 10
 <211> 91

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sTNFR-I
2.3D/d18

<400> 10
Met Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys Pro
1 5 10 15
Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser Phe
20 25 30
Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys Ser Lys Cys
35 40 45
Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr Val Asp Arg
50 55 60
Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp Ser
65 70 75 80
Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu
85 90

<210> 11
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sTNFR-I
2.3D/d8

<220>
<221> CDS
<222> (4)..(306)

<400> 11
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Met Tyr Ile His Pro Gln Asn Asn Ser Ile Cys Cys Thr Lys Cys
1 5 10 15
cac aaa gga acc tac ttg tac aat gac tgt cca ggc ccg ggg cag gat 96
His Lys Gly Thr Tyr Leu Tyr Asn Asp Cys Pro Gly Pro Gly Gln Asp
20 25 30
acg gac tgc agg gag tgt gag agc ggc tcc ttc acc gct tca gaa aac 144
Thr Asp Cys Arg Glu Cys Glu Ser Gly Ser Phe Thr Ala Ser Glu Asn
35 40 45
cac ctc aga cac tgc ctc agc tgc tcc aaa tgc cga aag gaa atg ggt 192
His Leu Arg His Cys Leu Ser Cys Ser Lys Cys Arg Lys Glu Met Gly
50 55 60

cag gtg gag atc tct tct tgc aca gtg gac cgg gac acc gtg tgt ggc 240
 Gln Val Glu Ile Ser Ser Cys Thr Val Asp Arg Asp Thr Val Cys Gly
 65 75

tgc agg aag aac cag tac cgg cat tat tgg agt gaa aac ctt ttc cag 288
 Cys Arg Lys Asn Gln Tyr Arg His Tyr Trp Ser Glu Asn Leu Phe Gln
 80 85 90 95

tgc ttc aat tgc tct ctg taaaagctt 315
 Cys Phe Asn Cys Ser Leu
 100

<210> 12
 <211> 101
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sTNFR-I
 2.3D/d8

<400> 12
 Met Tyr Ile His Pro Gln Asn Asn Ser Ile Cys Cys Thr Lys Cys His
 1 5 10 15
 Lys Gly Thr Tyr Leu Tyr Asn Asp Cys Pro Gly Pro Gly Gln Asp Thr
 20 25 30
 Asp Cys Arg Glu Cys Glu Ser Gly Ser Phe Thr Ala Ser Glu Asn His
 35 40 45
 Leu Arg His Cys Leu Ser Cys Ser Lys Cys Arg Lys Glu Met Gly Gln
 50 55 60
 Val Glu Ile Ser Ser Cys Thr Val Asp Arg Asp Thr Val Cys Gly Cys
 65 70 75 80
 Arg Lys Asn Gln Tyr Arg His Tyr Trp Ser Glu Asn Leu Phe Gln Cys
 85 90 95
 Phe Asn Cys Ser Leu
 100

<210> 13
 <211> 294
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: sTNFR-I
 2.3D/d15

<220>
 <221> CDS
 <222> (4)..(285)

<400> 13
cat atg tgc att agc tgt acc aag tgc cac aaa gga acc tac ttg tac 48
Met Ser Ile Ser Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr
1 5 10 15
aat gac tgt cca ggc ccg ggg cag gat acg gac tgc agg gag tgt gag 96
Asn Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu
20 25 30
agc ggc tcc ttc acc gct tca gaa aac cac ctc aga cac tgc ctc agc 144
Ser Gly Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser
35 40 45
tgc tcc aaa tgc cga aag gaa atg ggt cag gtg gag atc tct tct tgc 192
Cys Ser Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys
50 55 60
aca gtg gac cgg gac acc gtg tgt ggc tgc agg aag aac cag tac cgg 240
Thr Val Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg
65 70 75
cat tat tgg agt gaa aac ctt ttc cag tgc ttc aat tgc tct ctg 285
His Tyr Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu
80 85 90
taaaagctt 294

<210> 14
<211> 94
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sTNFR-I
2.3D/d15

<400> 14
Met Ser Ile Ser Cys Thr Lys Cys His Lys Gly Thr Tyr Leu Tyr Asn
1 5 10 15
Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp Cys Arg Glu Cys Glu Ser
20 25 30
Gly Ser Phe Thr Ala Ser Glu Asn His Leu Arg His Cys Leu Ser Cys
35 40 45
Ser Lys Cys Arg Lys Glu Met Gly Gln Val Glu Ile Ser Ser Cys Thr
50 55 60
Val Asp Arg Asp Thr Val Cys Gly Cys Arg Lys Asn Gln Tyr Arg His
65 70 75 80
Tyr Trp Ser Glu Asn Leu Phe Gln Cys Phe Asn Cys Ser Leu
85 90

<210> 15
 <211> 705
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(705)

<400> 15
 ttg ccc gcc cag gtg gca ttt aca ccc tac gcc ccg gag ccc ggg agc 48
 Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr Ala Pro Glu Pro Gly Ser
 1 5 10 15

aca tgc cgg ctc aga gaa tac tat gac cag aca gct cag atg tgc tgc 96
 Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln Thr Ala Gln Met Cys Cys
 20 25 30

agc aag tgc tcg ccg ggc caa cat gca aaa gtc ttc tgt acc aag acc 144
 Ser Lys Cys Ser Pro Gly Gln His Ala Lys Val Phe Cys Thr Lys Thr
 35 40 45

tcg gac acc gtg tgt gac tcc tgt gag gac agc aca tac acc cag ctc 192
 Ser Asp Thr Val Cys Asp Ser Cys Glu Asp Ser Thr Tyr Thr Gln Leu
 50 55 60

tgg aac tgg gtt ccc gag tgc ttg agc tgt ggc tcc cgc tgt agc tct 240
 Trp Asn Trp Val Pro Glu Cys Leu Ser Cys Gly Ser Arg Cys Ser Ser
 65 70 75 80

gac cag gtg gaa act caa gcc tgc act cgg gaa cag aac cgc atc tgc 288
 Asp Gln Val Glu Thr Gln Ala Cys Thr Arg Glu Gln Asn Arg Ile Cys
 85 90 95

acc tgc agg ccc ggc tgg tac tgc gcg ctg agc aag cag gag ggg tgc 336
 Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu Ser Lys Gln Glu Gly Cys
 100 105 110

cgg ctg tgc gcg ccg ctg cgc aag tgc cgc ccg ggc ttc ggc gtg gcc 384
 Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg Pro Gly Phe Gly Val Ala
 115 120 125

aga cca gga act gaa aca tca gac gtg gtg tgc aag ccc tgt gcc ccg 432
 Arg Pro Gly Thr Glu Thr Ser Asp Val Val Cys Lys Pro Cys Ala Pro
 130 135 140

ggg acg ttc tcc aac acg act tca tcc acg gat att tgc agg ccc cac 480
 Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr Asp Ile Cys Arg Pro His
 145 150 155 160

cag atc tgt aac gtg gtg gcc atc cct ggg aat gca agc agg gat gca 528
 Gln Ile Cys Asn Val Val Ala Ile Pro Gly Asn Ala Ser Arg Asp Ala
 165 170 175

gtc tgc acg tcc acg tcc ccc acc cgg agt atg gcc cca ggg gca gta 576
 Val Cys Thr Ser Thr Ser Pro Thr Arg Ser Met Ala Pro Gly Ala Val

180	185	190	
cac tta ccc cag cca gtg tcc aca cga tcc caa cac acg cag cca act			624
His Leu Pro Gln Pro Val Ser Thr Arg Ser Gln His Thr Gln Pro Thr			
195	200	205	
cca gaa ccc agc act gct cca agc acc tcc ttc ctg ctc cca atg ggc			672
Pro Glu Pro Ser Thr Ala Pro Ser Thr Ser Phe Leu Leu Pro Met Gly			
210	215	220	
ccc agc ccc cca gct gaa ggg agc act ggc gac			705
Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly Asp			
225	230	235	
<210> 16			
<211> 235			
<212> PRT			
<213> Homo sapiens			
<400> 16			
Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr Ala Pro Glu Pro Gly Ser			
1	5	10	15
Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln Thr Ala Gln Met Cys Cys			
20	25	30	
Ser Lys Cys Ser Pro Gly Gln His Ala Lys Val Phe Cys Thr Lys Thr			
35	40	45	
Ser Asp Thr Val Cys Asp Ser Cys Glu Asp Ser Thr Tyr Thr Gln Leu			
50	55	60	
Trp Asn Trp Val Pro Glu Cys Leu Ser Cys Gly Ser Arg Cys Ser Ser			
65	70	75	80
Asp Gln Val Glu Thr Gln Ala Cys Thr Arg Glu Gln Asn Arg Ile Cys			
85	90	95	
Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu Ser Lys Gln Glu Gly Cys			
100	105	110	
Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg Pro Gly Phe Gly Val Ala			
115	120	125	
Arg Pro Gly Thr Glu Thr Ser Asp Val Val Cys Lys Pro Cys Ala Pro			
130	135	140	
Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr Asp Ile Cys Arg Pro His			
145	150	155	160
Gln Ile Cys Asn Val Val Ala Ile Pro Gly Asn Ala Ser Arg Asp Ala			
165	170	175	
Val Cys Thr Ser Thr Ser Pro Thr Arg Ser Met Ala Pro Gly Ala Val			
180	185	190	

His Leu Pro Gln Pro Val Ser Thr Arg Ser Gln His Thr Gln Pro Thr
195 200 205

Pro Glu Pro Ser Thr Ala Pro Ser Thr Ser Phe Leu Leu Pro Met Gly
210 215 220

Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly Asp
225 230 235

<210> 17
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#1

<400> 17
ggttagccat atggacagcg ttgccccca a 31

<210> 18
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#2

<400> 18
cccaagcttt tacagagagc aattgaagca ctg 33

<210> 19
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#3

<400> 19
actcgaggat ccgcggataa ataagtaacg atccggtcca 40

<210> 20
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#4

<400> 20
caggtcggat cctatcagca gaagcactgg aaaaggtttt c 41

<210> 21
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#5

<400> 21
ggttagccat atggacagcg ttgccccca a 31

<210> 22
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#6

<400> 22
cgcgatccc tattaattga agcactggaa aagg 34

<210> 23
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#7

<400> 23
ccccatatgt atatccaccc tcaaaataat 30

<210> 24
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#8

<400> 24
cccaagcttt tacagagagc aattgaagca ctg 33

<210> 25
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#9

<400> 25
ccccatatgt cgattagctg taccaagtgc cacaaagg 38

<210> 26
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#10

<400> 26
cccaagcttt tacagagagc aattgaagca ctg 33

<210> 27
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#11

<400> 27
ccccatatgt gtaccaagtg ccacaaagga 30

<210> 28
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer;
Oligo#12

<400> 28
cccaagcttt tacagagagc aattgaagca ctg 33

<210> 29
<211> 31
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer;
Oligo#13

<400> 29

ggtttagccat atggacagcg ttgccccca a

31

<210> 30

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer;
Oligo#14

<400> 30

cccaagcttt taggtgcaca cgggtgtctg ttt

33